

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Warren B. JACKSON et al.

Application No.: New U.S. Patent Application

Filed: April 6, 2001

Docket No.: 105778

For: DISTRIBUTED ACTUATION ALLOCATION FOR LARGE ASSEMBLIES OF
IMPLEMENTATION UNITS

PRELIMINARY AMENDMENT

Director of the U.S. Patent and Trademark Office
Washington, D. C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please replace claims 13 (second occurrence)-26 as follows:

14. (Amended) The method, as recited in claim 13, wherein the grouping step is based on a physical layout of the plurality of actuators.

15. (Amended) The method, as recited in claim 13, further comprising:
partitioning each of the plurality of sub-instructions into a plurality of second sub-instructions for each of the sub-module actuators;

determining if each of the plurality of sub-module actuators includes at least one second sub-module actuator;

allocating each of the plurality of second sub-instructions to the least one second sub-module actuators for each of the sub-module actuators determined to include the at least one second sub-module actuator; and

actuating at least one of the plurality of actuators disposed within the sub-module based on the second sub-instructions for each of the sub-module actuators determined

not to include the at least one second sub-module actuator.

16. (Amended) The method, as recited in claim 13, wherein the allocation parameter includes at least one of:

the number of the plurality of sub-module actuators; and

the number of the plurality of module actuators.

17. (Amended) A method for allocating a desired goal to a plurality of actuators, comprising:

establishing a plurality of allocation levels arranged in a hierarchical manner;

and

for each allocation level:

identifying the number of module allocators within the allocation level;

and

for each module allocator:

receiving an allocation goal that is at least one of the desired goal and a module actuation goal from one of the plurality of allocation levels that is higher in hierarchical order than the allocation level; and

identifying an allocation parameter for the module allocator;

generating the module actuation goal by partitioning the actuation goal based on the allocation parameter;

determining whether the allocation level is a bottom allocation level;

allocating the module actuation goal to one of the module allocators within one of the plurality of allocation levels that is lower in hierarchical order than the allocation level, if it determined that the allocation level is not the bottom allocation level; and

assigning the module actuation goal to at least one actuator of the array of actuators controlled by the module allocator if it is determined that the allocation level is the bottom allocation level.

18. (Amended) The method, as recited in claim 17, wherein the number of module allocators identified in the identifying the number of module allocators step is predefined.

19. (Amended) A method for allocating a goal to a plurality of implementation

units, comprising:

grouping the implementation units into at least one group based on a first parameter;

dividing the at least one group into a plurality of sub-groups based on a second parameter;

allocating the goal to the at least one group based on
dividing the goal into a plurality of sub-goals

20. (Amended) A method for allocating a goal, comprising:

receiving the goal;

obtaining an allocation parameter;

partitioning the goal into a plurality of sub-goals based on the allocation parameter; and

allocating the goal to at least one of a plurality of implementation units and a plurality of groups of the plurality of implementation units.

21. (Amended) The method, as recited in claim 20, wherein the allocation parameter is predetermined.

22. (Amended) The method, as recited in claim 20, wherein the allocation parameter is an indication of the number of groups of plurality of implementation units to which the goal is to be allocated.

23. (Amended) The method, as recited in claim 20, wherein the obtaining step further comprises obtaining a second allocation parameter.

24. (Amended) The method, as recited in claim 23, wherein the second allocation parameter is a location identifier for at least one of the plurality of implementation units and the plurality of groups to which the goal is to be allocated.

25. (Amended) The method, as recited in claim 23, wherein the partitioning step further comprises partition the goal based on the allocation parameter and the second allocation parameter.

26. (Amended) The method, as recited in claim 23, wherein:
the obtaining step further comprises obtaining a third allocation parameter; and
the partitioning step further comprises partitioning the goal based on the allocation parameter, the second allocation parameter and the third allocation parameter.

27. (Amended) The method, as recited in claim 26, wherein the third allocation

parameter is a allocation weighting factor for at least one of the plurality of implementation units and the plurality of groups to which the goal is to be allocated.

REMARKS

Claims 1-27 are pending. By this Amendment, claims 13 (second occurrence)-26 are amended to be renumbered as claims 14-27, because the claims originally included two different claims identified as claim 13. The amendments were not made based upon a substantial reason related to patentability and they do not narrow the scope of the claims or otherwise create estoppels. No new matter is added.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. 1.121(c)(ii)).

Favorable consideration and prompt allowance are earnestly solicited.

Respectfully submitted,



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APPENDIX

Changes to Claims:

The following are marked-up versions of the amended claims:

1413. (Amended) The method, as recited in claim 123, wherein the grouping step is based on a physical layout of the plurality of actuators.

1514. (Amended) The method, as recited in claim 123, further comprising:

- partitioning each of the plurality of sub-instructions into a plurality of second sub-instructions for each of the sub-module actuators;
- determining if each of the plurality of sub-module actuators includes at least one second sub-module actuator;
- allocating each of the plurality of second sub-instructions to the least one second sub-module actuators for each of the sub-module actuators determined to include the at least one second sub-module actuator; and
- actuating at least one of the plurality of actuators disposed within the sub-module based on the second sub-instructions for each of the sub-module actuators determined not to include the at least one second sub-module actuator.

1615. (Amended) The method, as recited in claim 13, wherein the allocation parameter includes at least one of:

- the number of the plurality of sub-module actuators; and
- the number of the plurality of module actuators.

1716. (Amended) A method for allocating a desired goal to a plurality of actuators, comprising:

establishing a plurality of allocation levels arranged in a hierarchical manner;
and

for each allocation level:

identifying the number of module allocators within the allocation level;

and

for each module allocator:

receiving an allocation goal that is at least one of the desired
goal and a module actuation goal from one of the plurality of allocation levels that is higher
in hierarchical order than the allocation level; and

identifying an allocation parameter for the module allocator;

generating the module actuation goal by partitioning the
actuation goal based on the allocation parameter;

determining whether the allocation level is a bottom allocation
level;

allocating the module actuation goal to one of the module
allocators within one of the plurality of allocation levels that is lower in hierarchical order
than the allocation level, if it determined that the allocation level is not the bottom allocation
level; and

assigning the module actuation goal to at least one actuator of
the array of actuators controlled by the module allocator if it is determined that the allocation
level is the bottom allocation level.

1817. (Amended) The method, as recited in claim 167, wherein the number of
module allocators identified in the identifying the number of module allocators step is
predefined.

1918. (Amended) A method for allocating a goal to a plurality of implementation units, comprising:

grouping the implementation units into at least one group based on a first parameter;

dividing the at least one group into a plurality of sub-groups based on a second parameter;

allocating the goal to the at least one group based on

dividing the goal into a plurality of sub-goals

2019. (Amended) A method for allocating a goal, comprising:

receiving the goal;

obtaining an allocation parameter;

partitioning the goal into a plurality of sub-goals based on the allocation parameter; and

allocating the goal to at least one of a plurality of implementation units and a plurality of groups of the plurality of implementation units.

2120. (Amended) The method, as recited in claim 1920, wherein the allocation parameter is predetermined.

2221. (Amended) The method, as recited in claim 1920, wherein the allocation parameter is an indication of the number of groups of plurality of implementation units to which the goal is to be allocated.

2322. (Amended) The method, as recited in claim 1920, wherein the obtaining step further comprises obtaining a second allocation parameter.

2423. (Amended) The method, as recited in claim 223, wherein the second allocation parameter is a location identifier for at least one of the plurality of implementation units and the plurality of groups to which the goal is to be allocated.

2524. (Amended) The method, as recited in claim 223, wherein the partitioning step further comprises partition the goal based on the allocation parameter and the second allocation parameter.

2625. (Amended) The method, as recited in claim 223, wherein:
the obtaining step further comprises obtaining a third allocation parameter; and
the partitioning step further comprises partitioning the goal based on the allocation parameter, the second allocation parameter and the third allocation parameter.

2726. (Amended) The method, as recited in claim 256, wherein the third allocation parameter is a allocation weighting factor for at least one of the plurality of implementation units and the plurality of groups to which the goal is to be allocated.